



Fiberlink® 3X3X Series

Models 3134/3135 & 3334/3335

10 Channel Video Multiplexer/Demultiplexer

The all-digital Fiberlink® 3X3X series allows you to multiplex up to 10 video channels along with optional RS-Type data onto a single fiber optic core offering unsurpassed signal distribution efficiency. Fiberlink 3134 is compatible with Fiberlink Matrix offering you the ability to route up to 320 video signals.



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Contents

Welcome	3
Features	3
Package Contents	3
Technical Specifications	
Model Part Number Specifications	4
General Specifications	4
Video Specifications	4
Data Specifications	5
Optical Loss Budgets	5
Maximum Useable Distance	5
Installation Instructions	6
Alarm Switch Settings	7
Alarm Output Settings	7
Data Configuration Procedure	8
Data DIP Switch Settings	9
Data Terminal Block Wiring	10
Operating Pointers	12
Troubleshooting	12
Maintenance and Repairs	13
Certifications	13
Warranty	14
Accessories and Related Products	15

Welcome

Thank you for purchasing Communications Specialties, Inc.'s Fiberlink® 3X3X Series. The all-digital Fiberlink® 3134 series allows you to multiplex up to 10 video channels onto a single fiber optic core offering unsurpassed signal distribution efficiency. Fiberlink 3134 is compatible with Fiberlink Matrix offering you the ability to route up to 320 video signals.

Fiberlink® 3334 adds RS-Type Data to the same fiber optic cable.

Features

- No adjustments; pure digital processing and transmission
- Full color, uncompressed, real-time transmission in NTSC, PAL or SECAM
- Optional RS-Type Data
- Built-in diagnostic LEDs for each channel and a loss of signal/broken fiber alarm
- Internal, universal power supply with AC line cord
- Fiberlink Matrix Compatible
- One rack unit high (1.75 inches).
- Rackmount ears included with unit

Package Contents

- One Fiberlink® 3134, 3135, 3334 or 3335
- This User's Manual
- AC Line Cord
- Rackmount Ears
- Accessories Pack (fuses, rubber feet, etc)

Technical Specifications

Model Part Number Specification

Unit Type	Part Number
Transmitter Box (No Data)	3134-S7 or 3134-F9
Receiver Box (No Data)	3135-S7 or 3135-F7
Transmitter Box (With Data)	3334-S5, 3334-S7 or 3334-F9
Receiver Box (With Data)	3335-S5, 3335-S7 or 3335-F7

General Specifications

Operating Wavelength	1310 nm (S Version) 1550 nm (F Version)
Optical Connectors	ST (S Version) FCPC (F Version)
Operating Temperature	0 to +55 degrees C
Relative Humidity	10% - 90% (non-condensing)
Operating Power	95-250 VAC, 47-63 Hz
Size	1.75 H x 16.75 W x 10 D (inches) 44 H x 425 W x 254 D (mm)
Weight	Approx. 5.5 lbs; 2.5 kg
Fiberlink Matrix Compatibe	Models 3134 & 3135

Video Specifications

Number of Channels	10
Number of Fibers	1
Video Bandwidth (all channels at rated distance)	10 Hz - 6.5 MHz (-3 dB)
Video Input	1 volt p-p
Input/Output Impedance	75 Ohms
Differential Gain	<1.5% typical
Differential Phase	<1 degree typical
Signal-to-Noise Ratio	>63 dB (CCIR weighting)
Video Connectors	BNC

Data Specifications

Data Specification	
Number of Channels	1 (bi-directional)
Interfaces Supported	RS-232, RS-424, RS-485 2 Wire & 4 Wire Switch Selectable
Maximum Data Rate	100 Kbps
Protocols	NRZ, NRZI, RZ, Manchester, Bi-phase
Data Connectors	Screw Terminal Block

Optical Loss Budgets and Maximum Useable Distance

1310 nm (S Version)		
Fiber Type	Loss Budget	Distance
Single Mode Fiber	0-20 dB	55km
Multimode Fiber (62.5u)	0-20 dB	1.3km
Multimode Fiber (50u)	0-20 dB	1.0km
1550 nm (F Version)		
Fiber Type	Loss Budget	Distance
Single Mode Fiber	5-23 dB	80km
*Note: A minimum attenuation of 5dB is required between the transmitter and receiver for this version.		



Distance specifications are only approximate and are not guaranteed.
Operating loss budget must not be exceeded.

Installation Instructions

The Fiberlink® 3X3X Series of fiber optic transmission systems are ready for immediate use and do not require any special tools or equipment. However, an Optical Power Meter, such as the Fiberlink® 6615, can be useful in determining optical loss budgets during your systems design and maintenance.

The following instructions describe the typical installation procedure:

- 1) Connect the video source(s) to the video input(s) on the transmitter unit.
- 2) Connect your video output cable(s) to the video output connector(s) on the receiver unit.
- 3) Connect the fiber optic cable to the transmitter and receiver units.
- 4) Connect the power cables to the transmitter and receiver units.
- 5) When power is applied, the green POWER LED should illuminate, indicating the presence of operating power.

**DANGER!**

The transmitting element in the Fiberlink® 3134 transmitter unit contains a solid state Laser Diode located in the optical connector. This device emits invisible infrared electromagnetic radiation which can be harmful to human eyes. The radiation from this optical connector, if viewed at close range with no fiber optic cable connected to the optical connector, may be sufficient intensity to cause instantaneous damage to the retina of the eye. Direct viewing of this radiation should be avoided at all times!



CAUTION: RISK OF ELECTRICAL SHOCK

To reduce the risk of electrical shock, do not remove the cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

Alarm Switch Settings & Options

When an alarm condition occurs, the red Alarm LED on the front panel will blink, the internal piezo sounder will beep and the external contacts will be activated (see Alarm Output Settings). A toggle switch on the front panel allow you to turn off the sounder, but the Alarm LED will continue to blink and the external contacts will remain open until the fault is corrected.

Alarm Switch Settings (Transmitter)

Switch Position	Alarm Indication	Up	Down
1 thru 10 (Channel 1 thru 10)	Loss of Video	Enabled	Disabled
11	N/A	N/A	N/A
12	N/A	N/A	N/A

Alarm Switch Settings (Receiver)

1 thru 10	Loss of Video	Enabled	Disabled
11	Loss of optical signal	Enabled	Disabled
12	N/A	N/A	N/A

Alarm Condition Output

Note that when the alarm is triggered, a set of isolated SPDT contacts (rated at 0.4A, 115VAC 50/60 Hz or 2A, 32 VDC resistive) will be activated. These contacts are available at the rear panel ALARM terminal block and may be used for remote signaling applications. Connections to this block are as follows:

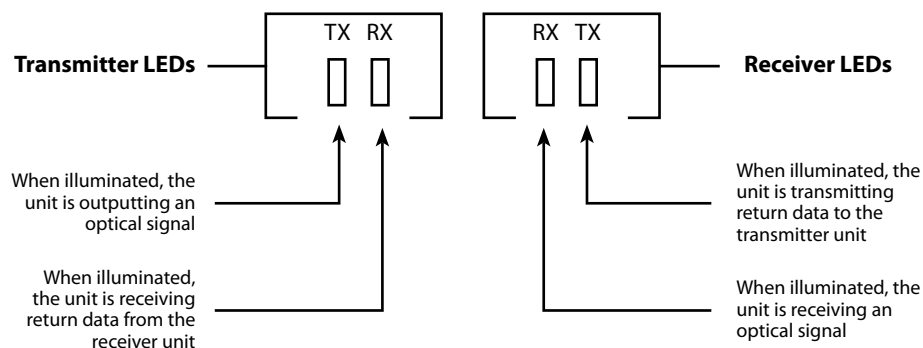
Alarm Output Settings

Pin Position	Operation
Pin 7	N/A
Pin 8	Closed for no alarm condition Open for alarm conditions
Pin 9	Common
Pin 10	Open for no alarm condition Closed for alarm conditions

Data Configuration Procedure.

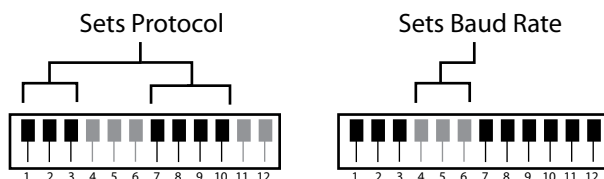
The following instructions describe the typical data configuration procedure:

- 1) Set the rear panel DIP switches of the transmitter for the desired protocol.
See page 9 for DIP switch configuration settings.
- 2) Set the rear panel DIP switches of the receiver for the desired protocol.
See page 9 for DIP switch configuration settings.
- 3) Data terminal block positions 1 through 6 can be used as data inputs or data outputs depending upon the protocol selected. Refer to page 10 for terminal block configuration.
- 4) After the terminal blocks have been wire appropriately, plug them into the rear panel connectors labels DATA/ALARM on both the transmitter and receiver units.
- 5) If there is no fiber optic cable connecting the transmitter and receiver at this time, connect an optical cable to both the transmitter and receiver units at this time.
- 5) Turn on the power for both the transmitter and receiver units. When power is applied the green POWER LED on each unit will illuminate. TX and RX LEDs are described below:



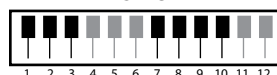
Data DIP Switch Settings

Switch Position 1-3, 7-10 are used to select the desired protocol. Switch positions 4-6 are used to set the desired Baud Rate.

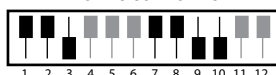


Protocols:

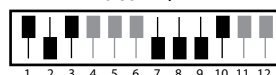
RS-232



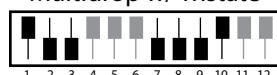
RS-422/485 4 Wire
Point to Point



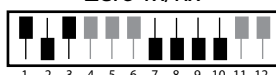
RS-485 2 Wire
Auto Tx/Rx



RS-485 4 Wire
Multidrop w/ Tristate

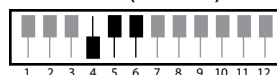


RS-485 2 Wire
Zero Tx/Rx

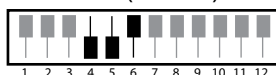


Baud Rates

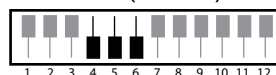
2400 (4.73ms)



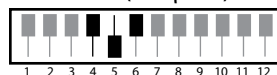
4800 (2.20ms)



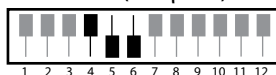
9600 (1.10ms)



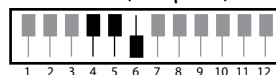
19.2k (620µsec)



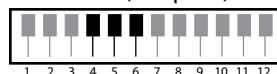
38.4k (300µsec)



57.6k (180µsec)



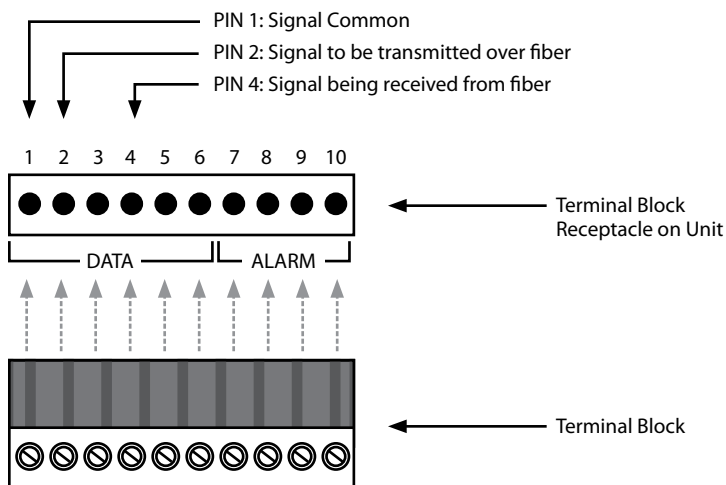
76.8k (150µsec)



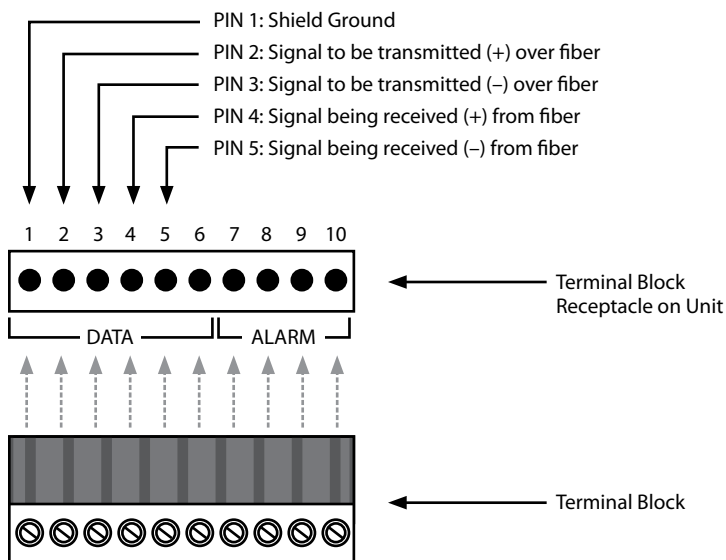
Data Terminal Block Wiring

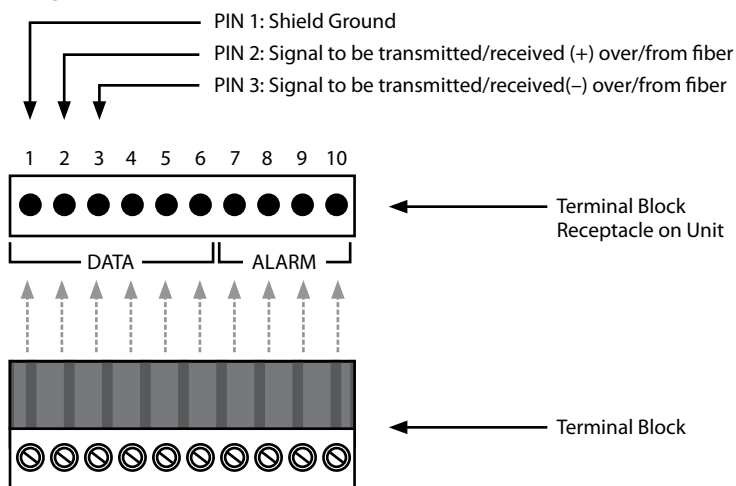
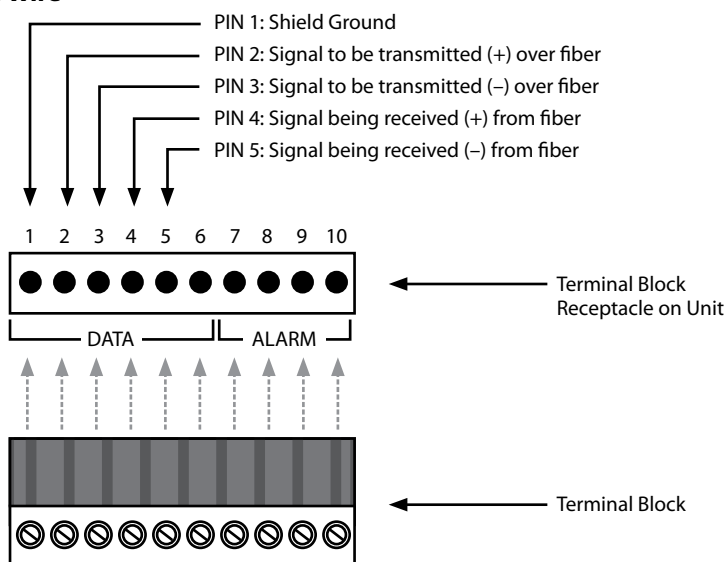
Pins 1 through 6 are used for data. Pins 7 through 10 are used for the Alarm (see page 7).

RS-232



RS-422



RS-485 2 Wire**RS-485 4 Wire**

Operating Pointers

Remember to check attenuation of the fiber optic cable. The system will only operate properly if these specifications fall within the range of the system's loss budget.

Troubleshooting

Multimode fiber optic cable contains an optical fiber with a light carrying "core" that is only .0025 inches (62.5 microns) in diameter. Single mode fiber optic cable has an even smaller "core," only .00032 to .0004 inches (8-10 microns). This is smaller than a human hair! Therefore, any minute particles of dirt or dust can easily block the fiber from accepting or radiating light. To prevent this from happening, always use the provided dust caps when ever optical connectors are exposed to air. It is also a good idea to gently clean the tip of an optical connector with a lint-free cloth moistened with alcohol whenever dust is suspected.

The status of the LEDs should provide the first clue as to the origin of any operational failure. If these are off, it usually means that the fiber is broken or has too much attenuation. Next, be certain that the input and output signal connections are correct.

An optical power meter, such as the Fiberlink® 6615, a visible light source, such as the Fiberlink® 6610, and a Three Wavelength Light Source, such as the Fiberlink® 6620, can greatly assist and expedite troubleshooting of fiber optic transmission systems and are recommended tools all installers should have available.

Finally, although multimode and single mode devices may look the same, they will not operate properly together. Using the wrong device or fiber can easily add more attenuation than specified, resulting in poor overall performance. It should be noted that some of our fiber optic products support both single mode and multimode fiber in the same unit.

If, after reviewing the above possibilities, the system is still not operating, please contact the Customer Service Department for further assistance. If you suspect your problem is caused by the optics or the fiber optic cable, and you have an optical power meter, please take the appropriate measurements prior to contacting support.

Maintenance and Repairs

The Fiberlink® 3X3X Series has been manufactured using the latest semiconductor devices and techniques that electronic technology has to offer. They have been designed for long, reliable and trouble-free service and are not normally field repairable.

Should difficulty be encountered, Communications Specialties maintains a complete service facility to render accurate, timely and reliable service of all products.

The only maintenance that can be provided by the user is to ascertain that optical connectors are free of dust or dirt that could interfere with light transmission and that electrical connections are secure and accurate. Please see the Troubleshooting section of this manual for additional information.

An optical power meter, such as the Fiberlink® 6615, a visible light source, such as the Fiberlink® 6610, and a Three Wavelength Light Source, such as the Fiberlink® 6620, can greatly assist and expedite troubleshooting of fiber optic transmission systems and are recommended tools all installers should have available.

All other questions or comments should be directed to our Customer Service Department. It should be noted that many "problems" can easily be solved by a simple telephone call.

If you suspect your problem is caused by the optics or the fiber optic cable, and you have an optical power meter, please take the appropriate measurements prior to contacting support.

Certifications





Communications Specialties, Inc. (CSI) warrants that, for a period of three years after purchase by the Buyer, this product will be free from defects in material and workmanship under normal use and service. A Return Material Authorization (RMA) number must be obtained from CSI before any equipment is returned by the Buyer. All materials must be shipped to CSI at the expense and risk of the Buyer.

CSI's obligation under this warranty will be limited, at its option, to either the repair or replacement of defective units, including free materials and labor. In no event shall CSI be responsible for any incidental or consequential damages or loss of profits or goodwill.

CSI shall not be obligated to replace or repair equipment that has been damaged by fire, war, acts of God, or similar causes, or equipment that has been serviced by unauthorized personnel, altered, improperly installed, or abused.

RMA numbers and repairs can be obtained from:

Communications Specialties, Inc.

55 Cabot Court
Hauppauge, NY 11788 USA
Tel: (631) 273-0404
Fax: (631) 273-1638

or, in the Asia Pacific Region:

Communications Specialties Pte Ltd

100 Beach Road
#22-09 Shaw Tower
Singapore 189702
Tel: +65 6391 8790
Fax: +65 6396 0138

RMA numbers can also be obtained from our web site: **commspecial.com**

Please have your serial number available.



Fiberlink® 6610 Visible Light Source

The Fiberlink® Visible Light Source provides a visible 650 nm laser output that can be used for identifying fiber breaks and individual fibers within fiber bundles, allowing for convenient, on-site testing of fiber networks during construction and maintenance procedures.



Fiberlink® 6615 Optical Power Meter

The Fiberlink® Optical Power Meter measures the power of optical signals at 850, 980, 1310 and 1550 nm wavelengths, allowing for convenient, on-site testing of fiber networks during construction and maintenance procedures. It can be used to measure the power of an optical signal reaching the receiving end of a fiber optic cable, as generated either by a transmitter unit or by a light source such as the 6620.



Fiberlink® 6620 Three Wavelength Light Source

The Fiberlink® Three Wavelength Light Source offers a laser output at wavelengths of 1310 and 1550 nm and VCSEL output at 850 nm, allowing for convenient, on-site testing of fiber networks during construction and maintenance procedures.



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P/N 128729 Rev D